SEAPRINT: The Navy's Enterprise Approach to HSI

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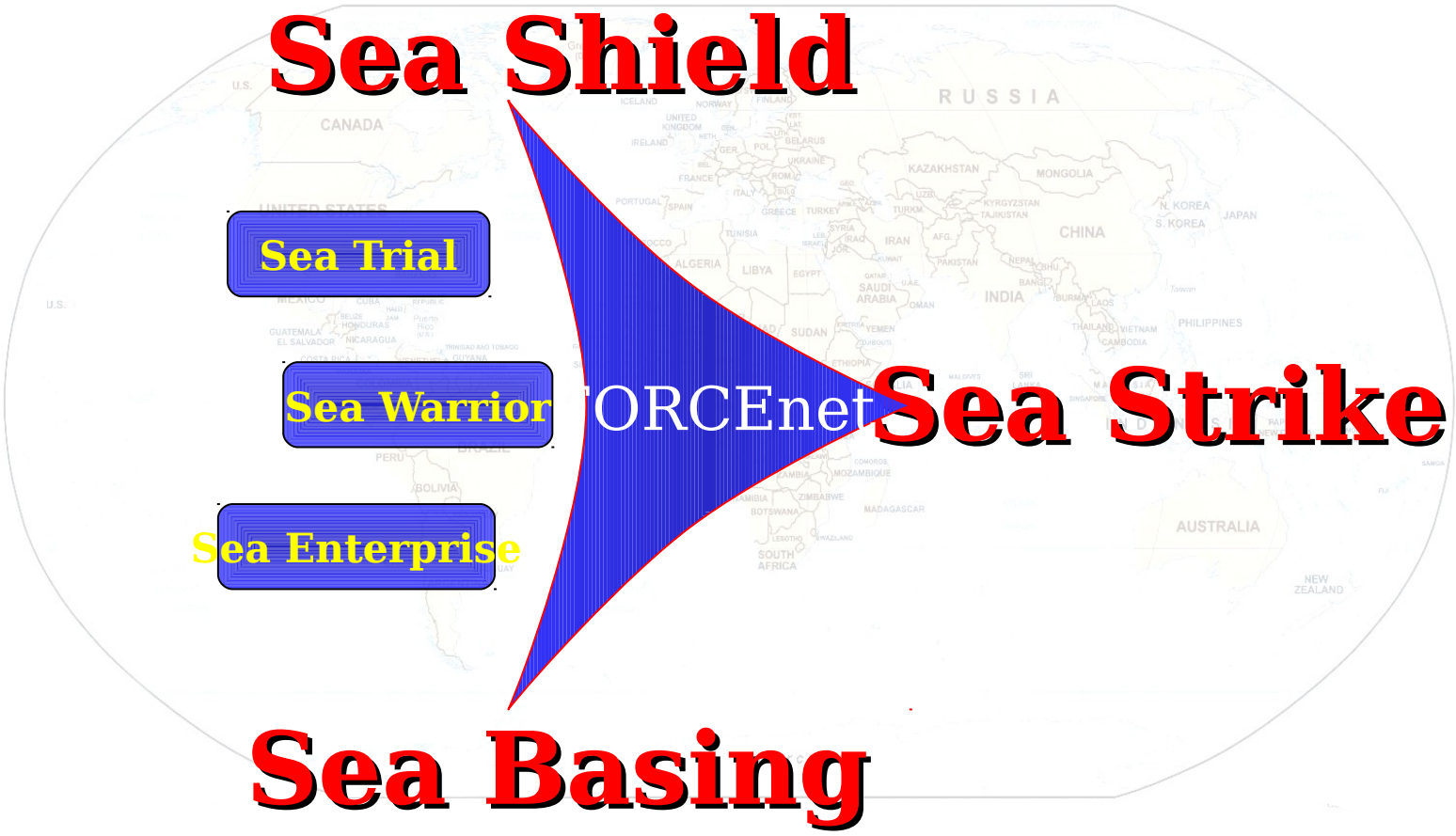
SEA POWER 21

N12 Warriors Shaping A Quality Fleet



Getting At The Details

Persistent Credible Combat Power

Effects Based Operations

SEA POWER 21

CURRENT

Merging Sea Warrior And Acquisition

FUTURE

SEAPRINT

Reqmnt | Syste m | Career Devlp | Talent Deliver

21st Century Sea Warrior is the Enabler between the warfighting System and the warfighting Effect

SEAPRINT:
Systems Engineering, Acquisition and PeRsonnel INTegration

- ***Philosophy***
  - Sailors are key enabler of operational capability
  - HSI requirements must be design DRIVERS, not consequences
  - Affordability is both dollars and human resources
  - Strategic Manpower Management is required for total system performance and affordability
- ***Technical Approach***
  - Integrates new processes (e.g., Sea Warrior, TFXL) with existing processes (e.g., JCIDS, acquisition, systems engineering)
  - Integrates HSI domain analyses
- ***Emerging Tool Set***
  - SkillsNET
  - IMPRINT
  - *PeopleSoft*

SEAPRINT Project Impact

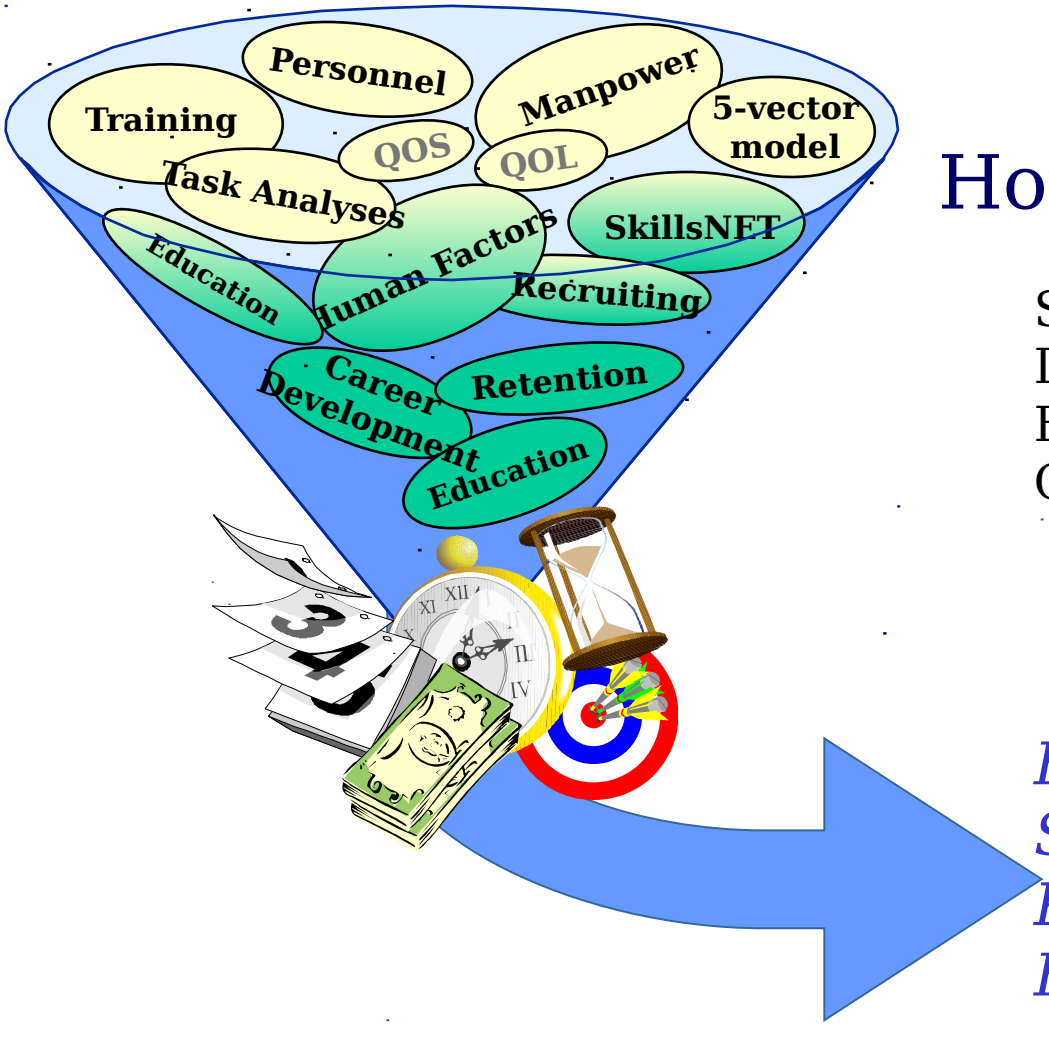
- *Bringing the Navy HSI Community Together*
- *Ensuring LONG-TERM impact*
- *Developing a WORKABLE Process*
- *Navy Enterprise Solution*
  - Identify/Predict operator/maintainer “target audience” personnel characteristics and KSA requirements
  - Identify/Predict **complete** weapon system life cycle cost (LCC)
  - Early design trade-offs to maximize Human Performance
  - High fidelity metrics
  - A **single** HSI process for government and industry
  - Improving future MPT business practices

FY 03 Initiatives

$1.05M Congressional Plus Up

- *Adopt MANPRINT philosophy*
  - Navy-wide policy for MPT/HSI Integration in Acquisition
    - HSI Plan
    - HSI implications and constraints in ICD
    - Target Audience Description (TAD)
    - Capability-based, testable requirements in CDD and CPD
    - Human-in-the-loop testing, modeling and simulation, experimentation
    - HSI assessments
  - DoD-wide HSI training and education
- *Apply IMPRINT to Navy application*
  - Develop technical process
  - Define data elements required for Strategic Manpower Management (SMM)
  - Validate via a case study
    - E-2C maintenance tasks – propeller/hub assembly

The Devil's in the Details…



How do you go from here…

Separate initiatives
Different organizations
Existing processes
Changing priorities/definitions

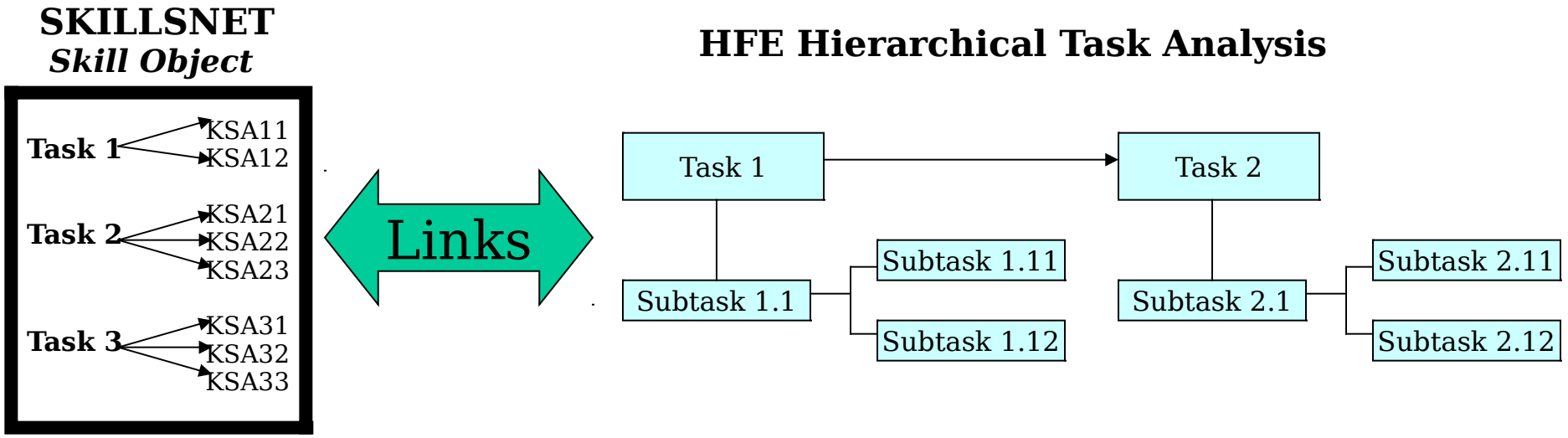
To here?

Human Systems Integration
Strategic Manpower Manage
Personnel Integration
Human Performance Require

FY 03 Initiatives

$1.05M Congressional Plus Up

- *Integrate Force Management Initiatives (SkillsNET)*
  - Determined role/usage of SkillsNET job and task data
  - Link KSAT constructs to HFE task taxons
  - Identify/analyze relevant job characteristics
  - Determine task-to-task mapping (post data collection)
  - Identify/Modify tools to enable feedback and database growth



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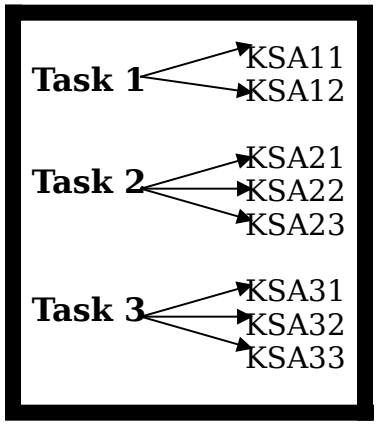
"Step 2"
Current / Projected Inventory Assessment

SKILLSNET
Skill Object



Target Audience / Resource Pool
Physical Characteristics
Cognitive Capabilities
Recruiting and Retention T
Manning Levels
Current Jobs
Available KSAs

ICD

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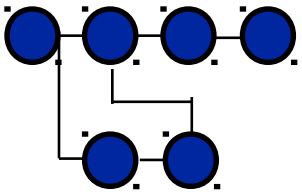
"Step 3"
Develop a Feasible Solution



IMPRINT Task Network

Initial Design Requirements

Initial MPT Requirements

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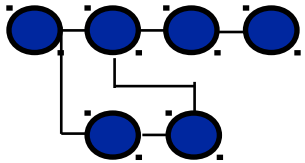
"Step 4"
Current Capability Assessment and Gap Analysis

SKILLSNET
Skill Object

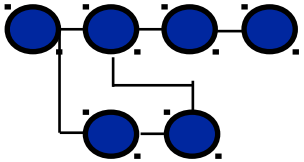
Task 1	KSA11 KSA12
Task 2	KSA21 KSA22 KSA23
Task 3	KSA31 KSA32 KSA33



Re-run IMPRINT Task Network

SEAPRINT

"Step 5"
Trade offs and Final Requirements



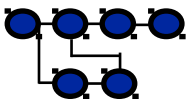
Re-run IMPRINT Task Network

Mission Success

CDD

Mission Failure

Re-run IMPRINT Task Network



Mission Success

IMPRINT Task Network Final Design Requirements Final MPT Requirements

SEAPRINT

Brings Together Requirements, System Design and Human Systems Integration

- Based upon existing requirements determination, acquisition and systems engineering processes
- Addresses all DoD, DoN and SYSCOM HSI requirements
- Doesn’t add programmatic requirements
- Reasonable cost (with significant ROI)
- Ensures capability performance goals are met

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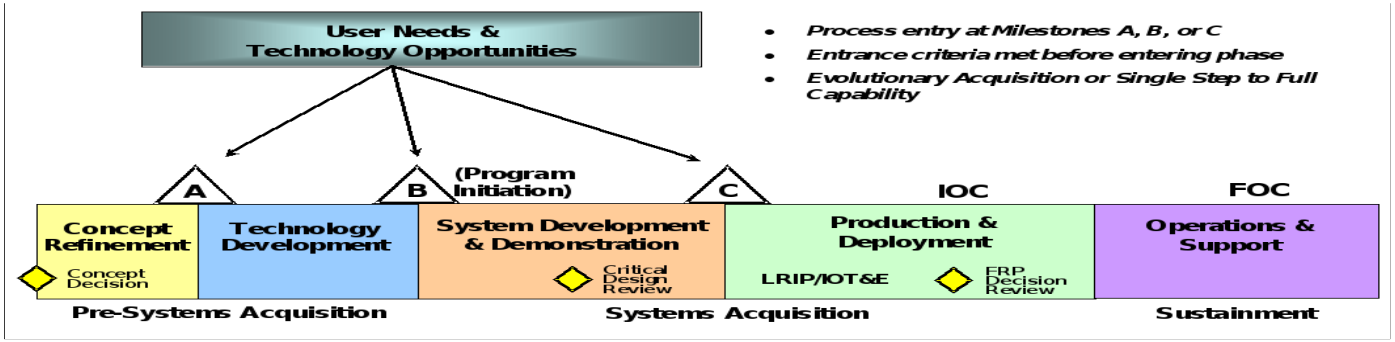
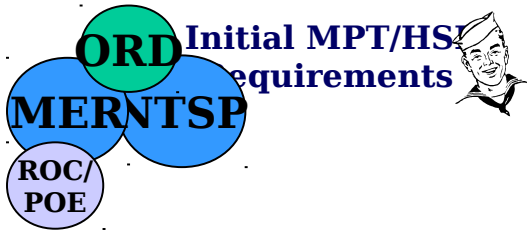
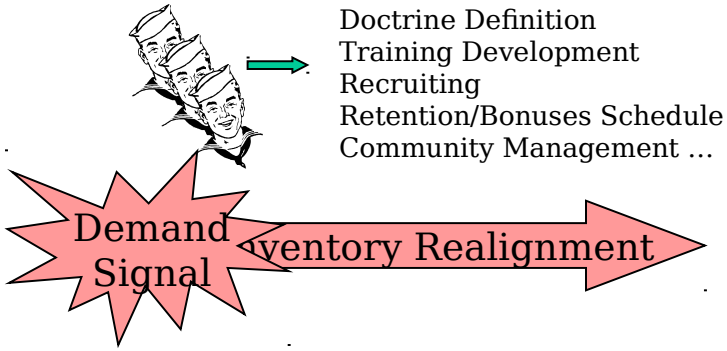
N12 Warriors Shaping A Quality Fleet

The Requirements Challenge

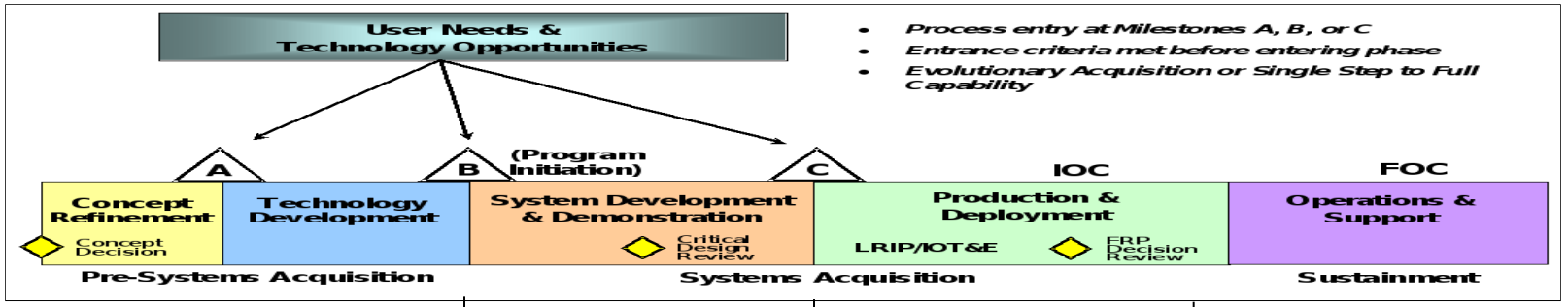






Current requirements process is REACTIVE. The demand signal occurs too late.

The PROACTIVE Solution



Projected Personnel Capabilities

Initial MPT Requirements

Systems Engineering / HFE / Task Network Modeling

Doctrine / Training Development
Recruiting
Retention/Bonuses Schedule
Community Management

Final MPT Requirements

TAD

ICD
HSIP

CDD
MER NTSP
ROC/ POE

CPD
HSIP Update
MER Update
NTSP Update
ROC/ POE

CPP
SMD/ SQMD

Demand Signal

Inventory Realignment

Earlier Demand Signal = More Influence
Processes are more PROACTIVE.

SEAPRINT

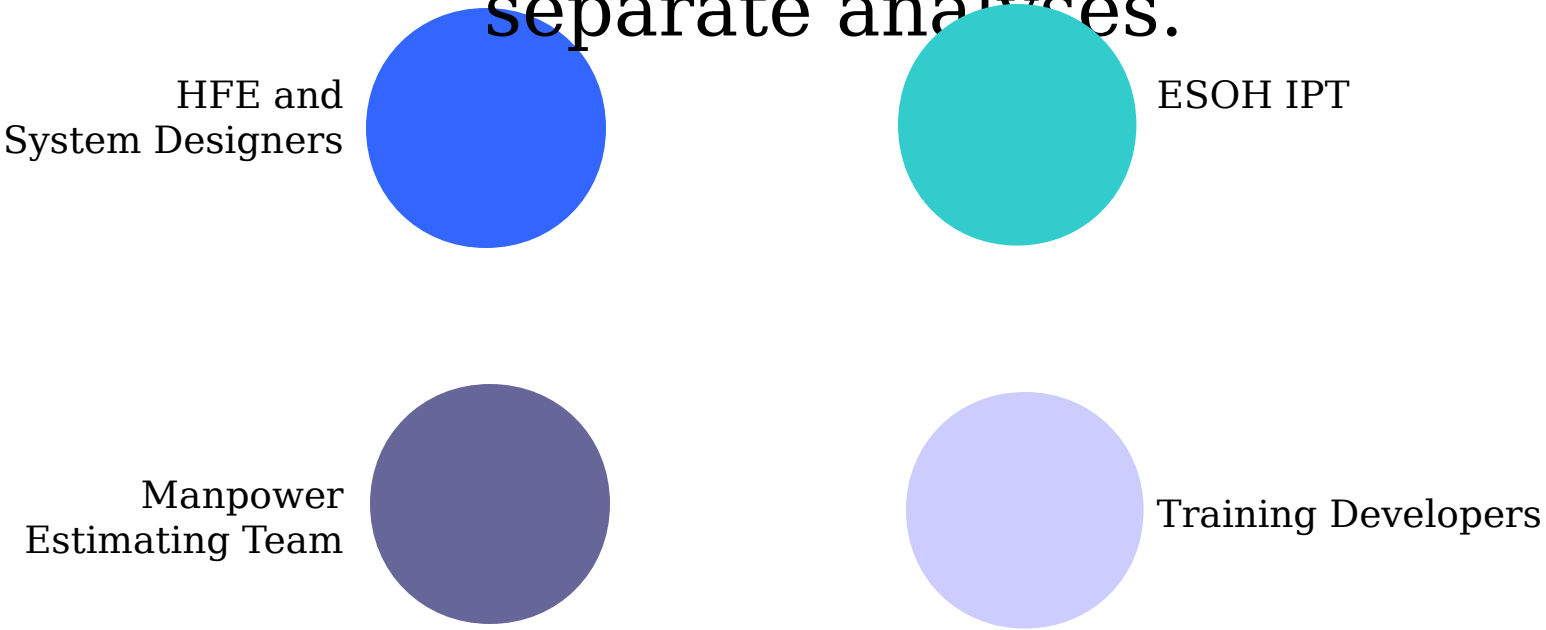
SEAPRINT provides Navy a ***single integrated process*** *that addresses all aspects of Human Systems Integration –*
from ***capability definition through personnel delivery****.*

It offers the opportunity to:

- Reduce Acquisition Costs - shared, not duplicative analyses
- Maximize ROI - integrated human performance

Traditional HSI Approach

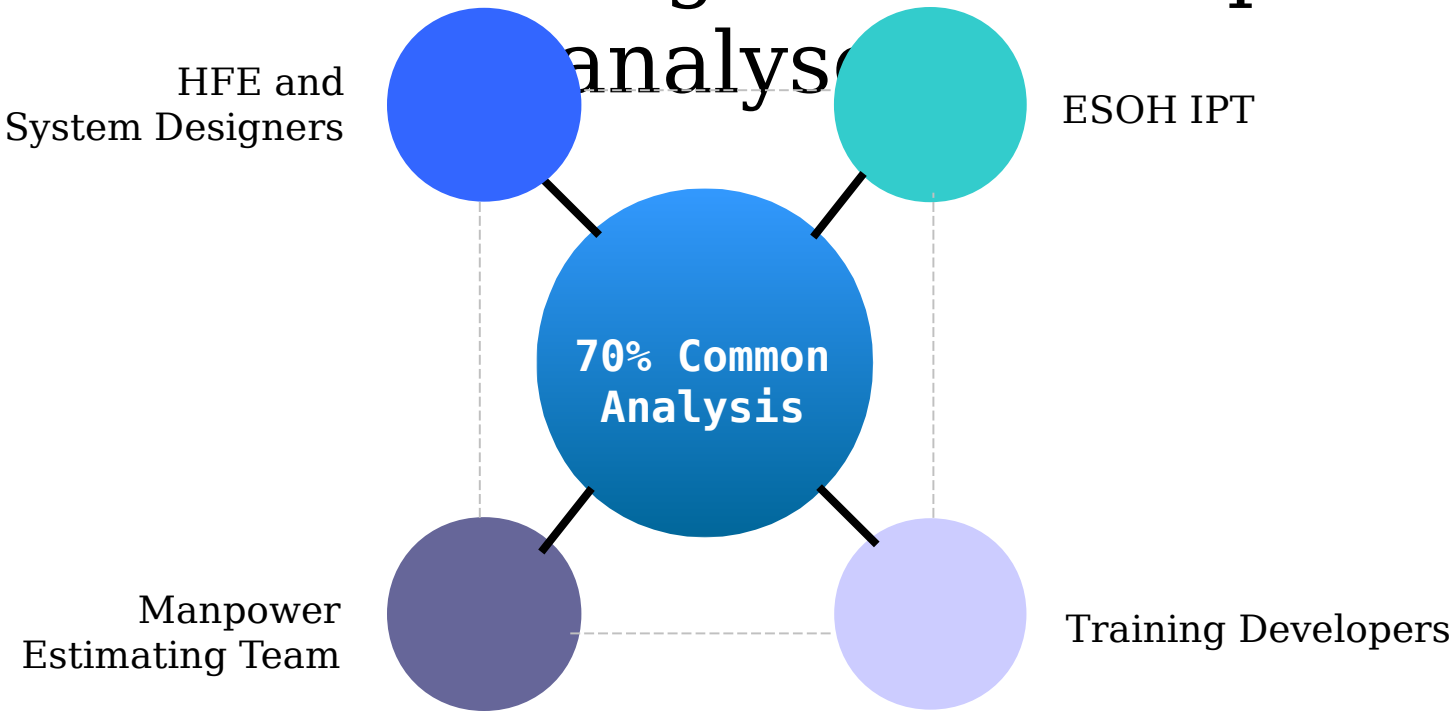
Traditional approaches involved multiple, separate analyses.



Each had its own cost, schedule and "management overhead". Information sharing didn't always occur.

SEAPRINT

SEAPRINT integrates the separate analyses



Less Redundancy…Reduced Acquisition Cost…
Integrated Solutions…Reduced “Management Overhead”

Achieving the Proactive Solution

- Requires:
  - Better integration of HSI processes with Acquisition and Systems Engineering
  - Standardization of improved processes
  - Better HSI-related data earlier
  - Improved process insight and management

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SEAPRINT

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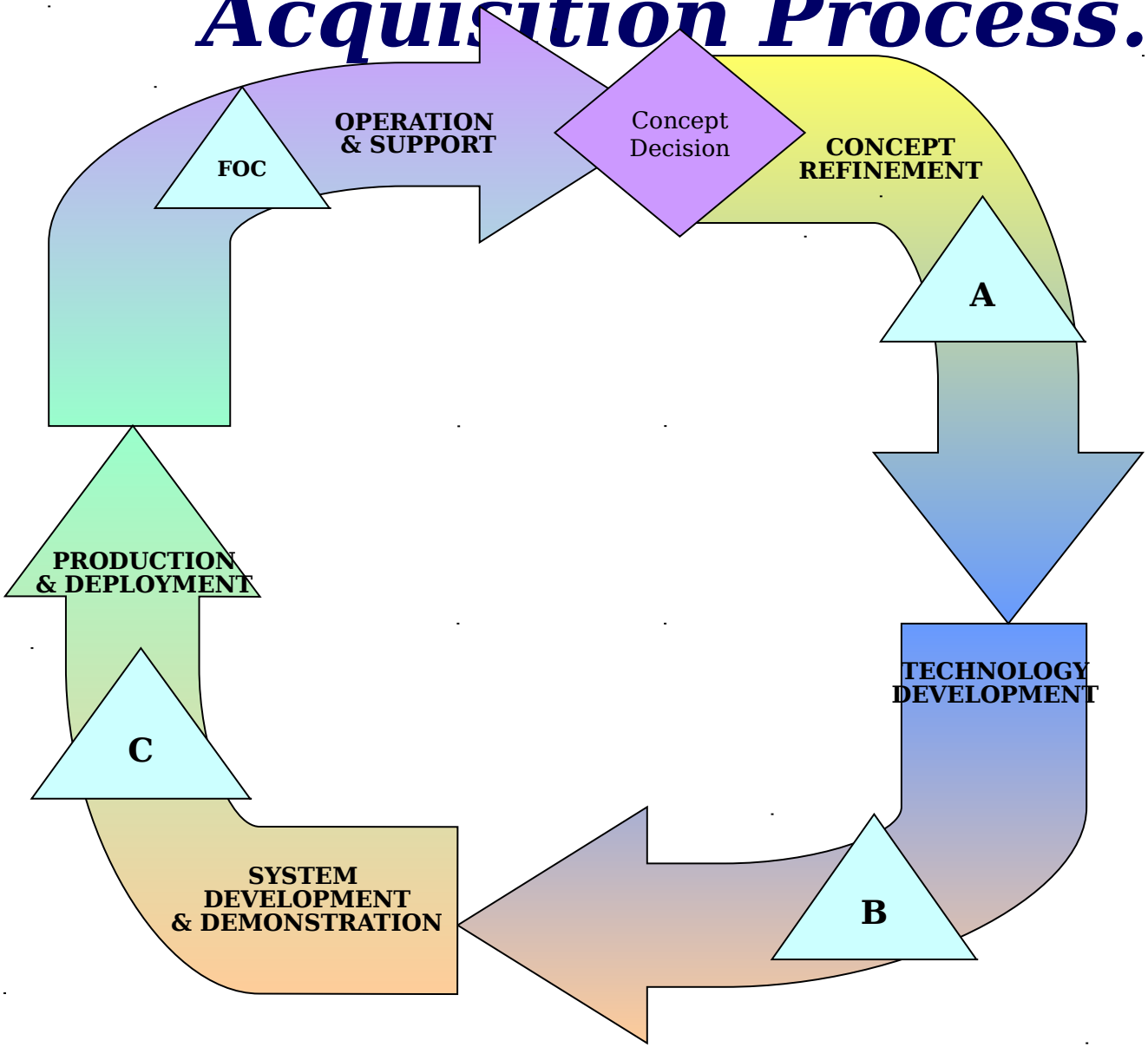
SEAPRINT IS:

- A Total Program
  - Management Tenets
  - Technical Process
  - Emerging Tool Set
- Integration of Ongoing Initiatives
  - Capabilities-Based Approach
  - Streamlined Acquisition
  - Sea Warrior
  - Revolution in Training/5VM
- Standardization of HSI processes across Navy and DoD

So, What Would a SEAPRINT Program Look Like?

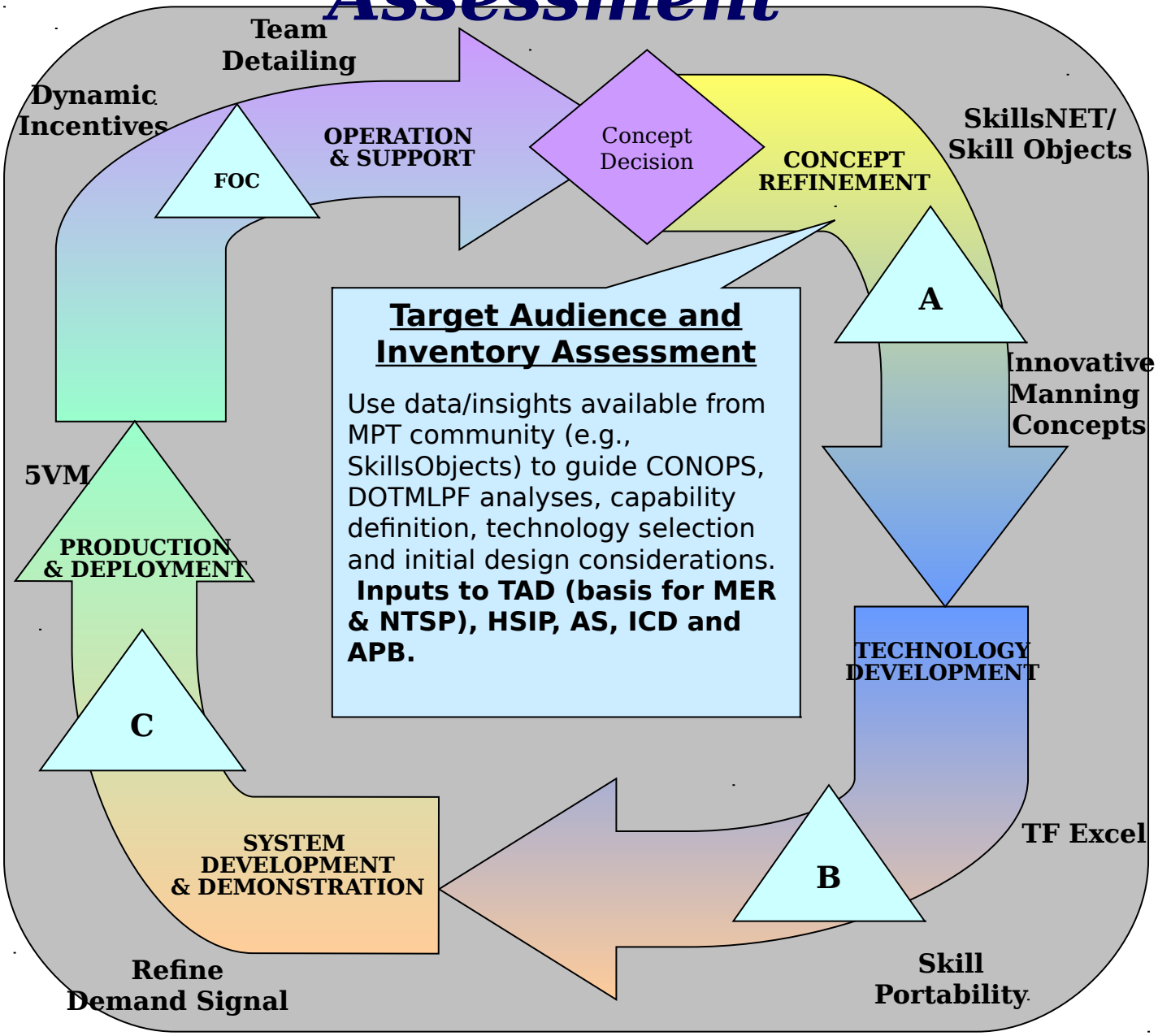
1. HSI Initiated Early
2. Recognition of Issues – Plan for Resolution
3. Documented Performance Requirements
4. Integrated Technical Process
5. Proactive Trade-offs During Design
6. HSI as a Factor in Source Selection
7. SEAPRINT Milestone Assessments

SEAPRINT begins with the Acquisition Process…

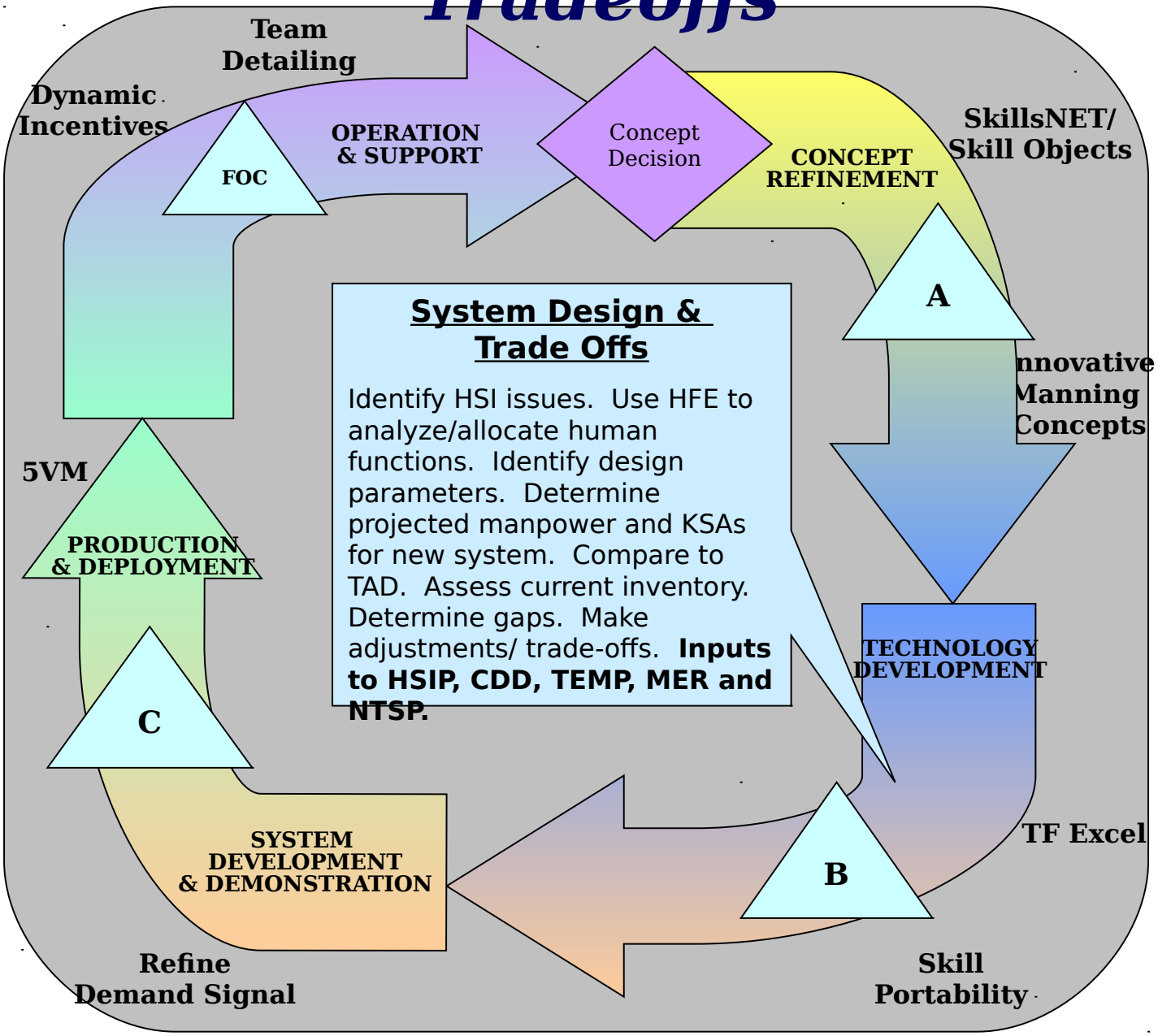


...and Integrates the HR System

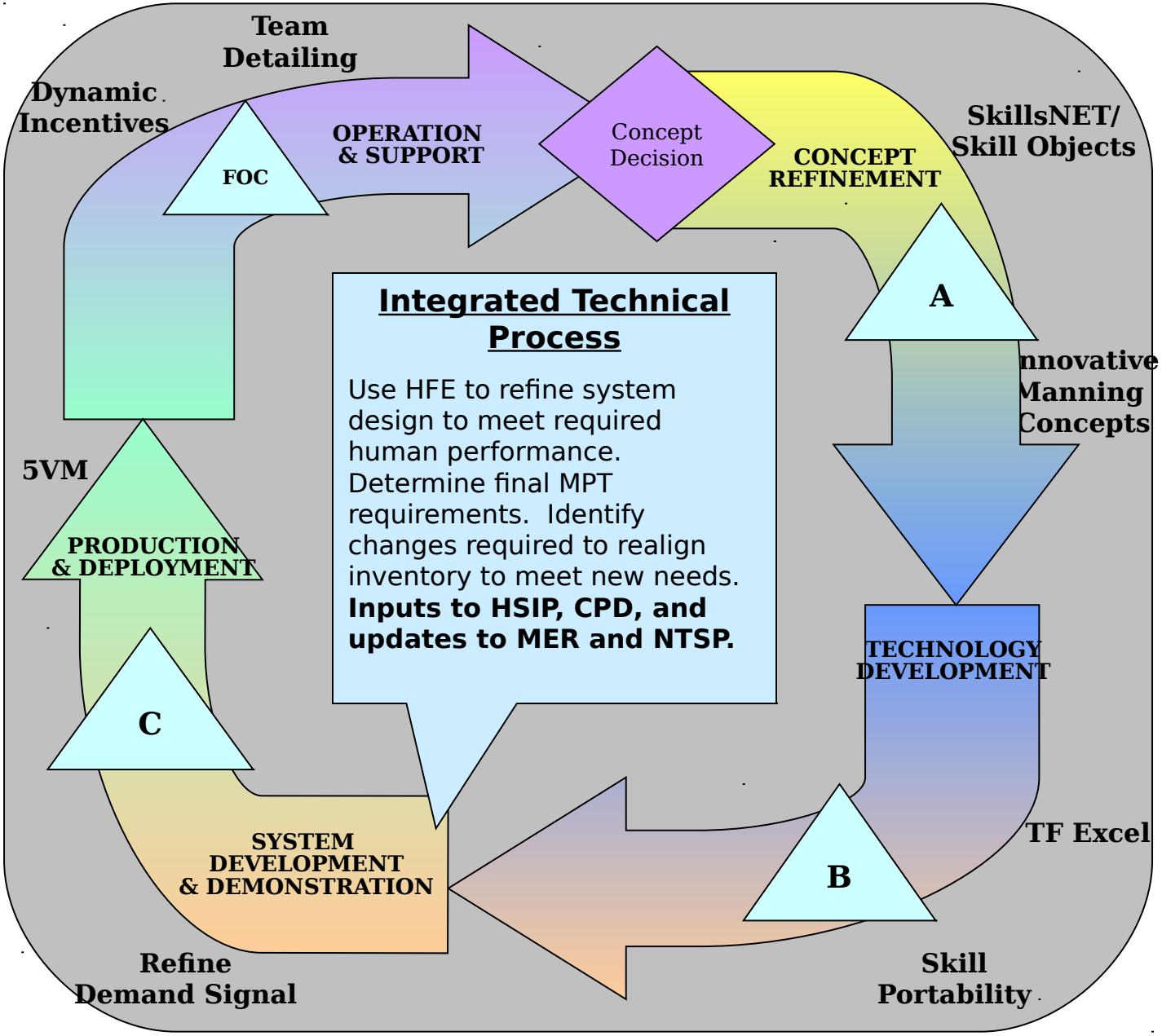
Allowing Early Inventory Assessment



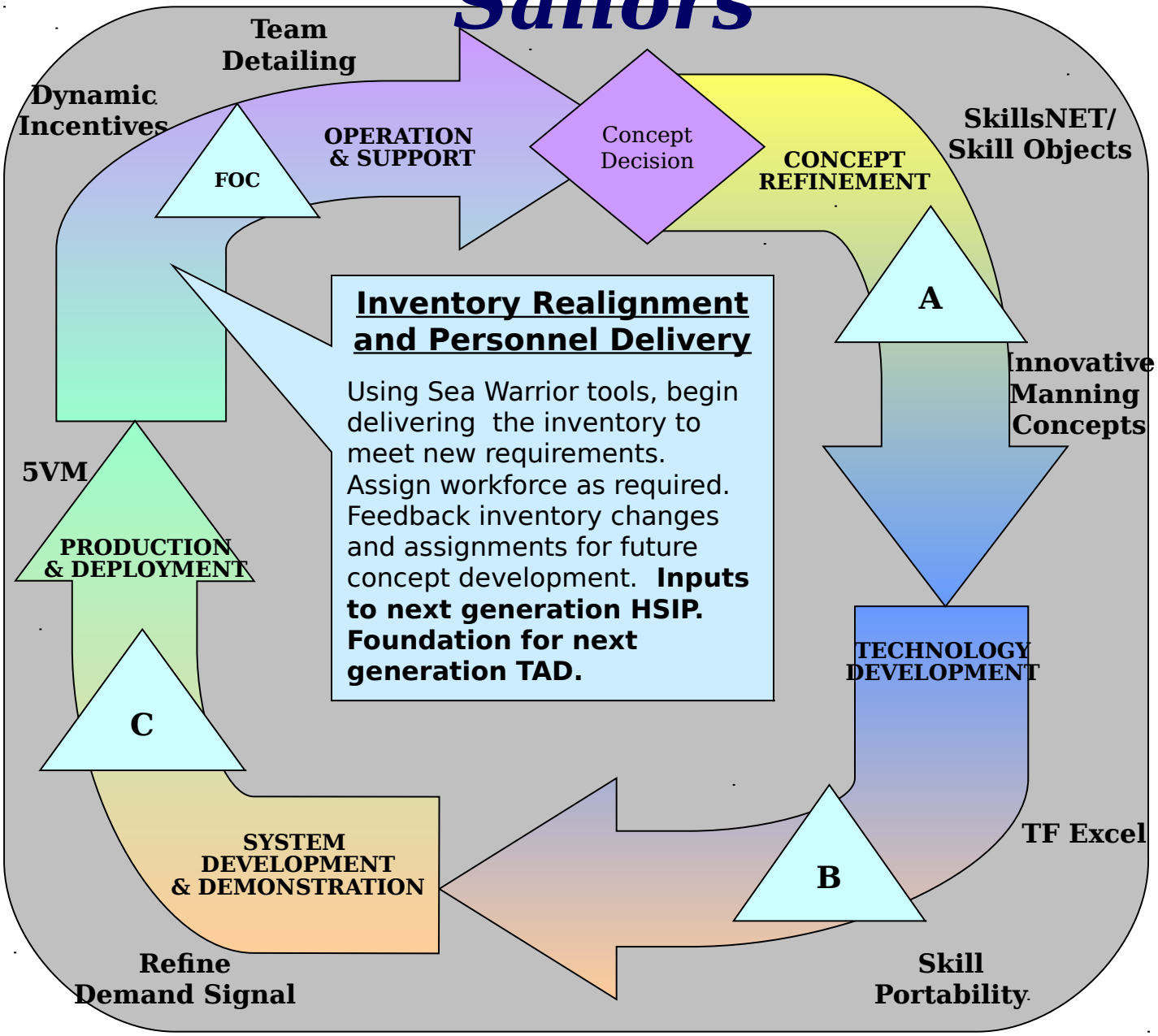
Affordable Design-HSI Tradeoffs



An Early Demand Signal



Delivery of the Right Sailors

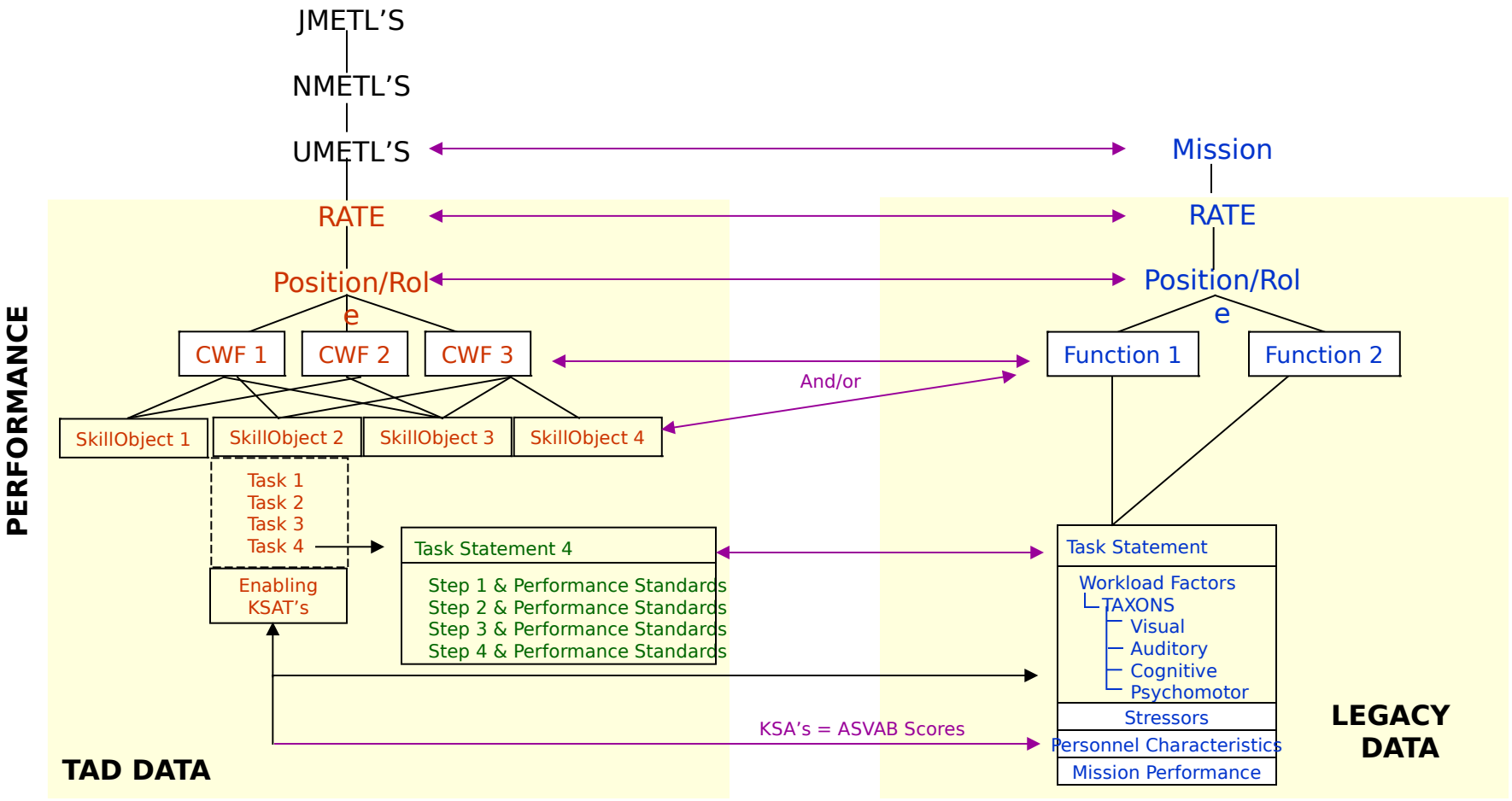


SEAPRINT FY03 Activities

- Identified SEAPRINT tenets
  - Seven “program management elements”
    - Initiated early
    - Recognition of issues – Plan for Resolution (SSMP)
    - Documented Performance Requirements
    - Integrated Technical Process
    - Proactive Design Trade-offs
    - HSI as a Factor in Source Selection
    - Milestone Assessments
- Theoretically mapped Systems Engineering, Acquisition and Sea Warrior data requirements
- Executed a case study (E-2C prop/hub assembly maintenance tasks)
  - “Proved” theoretical mapping worked in reality
  - “Proved” resulting task network model remained valid
  - Illustrated added utility of integrating data elements

SEAPRINT Generic Model

Skill Object and HFE Data Element Associations



Future Linkage

Current Linkage

Human Capital Inventory Elements

Training Analysis Inventory

HFE Analysis Inventory

Source: SkillsNET Corporation 2003

SEAPRINT FY03 Result

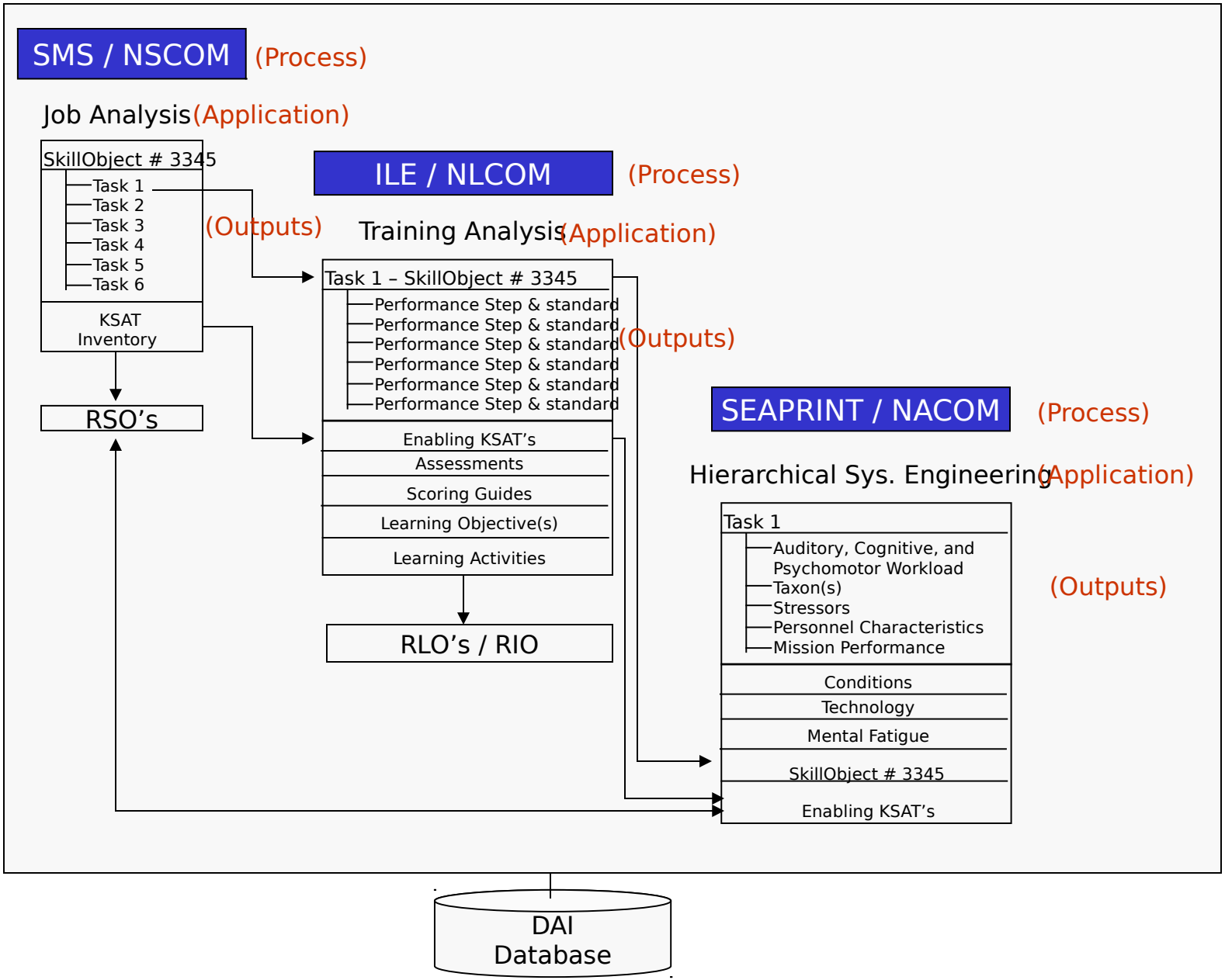
- Conducted analyses – “ran” the resulting task network model
  - Illustrated dramatic decrease in man-hours spent removing prop (241.2 hours on legacy, 64.6 for new system)
  - Quantified increases in inherent availability, average achieved availability and readiness
    - Reliability – 5 more mission segments accomplished during new system 360-day scenario
  - Determined that no increase in skill levels were required between legacy and new system
  - Identified non-standard industry processes and tools

SEAPRINT FY03 Results

- "Formally" integrated concepts
  - Established Level III in Sea Warrior Data Assurance Infrastructure
    - Level III is the HSI data
      - Collected ONLY for programs that implement SEAPRINT
      - NOT collected as part of Sea Warrior standard activities
      - Initial development proposed for LCS Flight I ("Second Case Study"?)

Proposed Navy Data Assurance Infrastructure

Human Systems Integration



SEAPRINT FY04 Proposed Projects

- FY03 “carry over” funds
  - Additional E-2C task network modeling
  - Revise training data elements
  - Conduct training analyses on E-2C case study data
  - **Develop SEAPRINT policy and guidance**
- FY04 Congressional funds
  - Develop SEAPRINT “tool set”
  - Conduct case study with officers
  - Enhance training component of IMPRINT
  - Develop SEAPRINT Skill Analyst certification
  - Develop LCS Target Audience Description
  - **“Navyize” IMPRINT**
  - **CVN-21 flight deck modeling & simulation support**
- Resource Sponsor funds
  - **Collect LCS Level III data**
  - Army/Navy collaboration on Joint Common Missile

TAKE-AWAYS

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*from **capability definition through personnel delivery**.*

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- Maximize ROI - integrated human performance